As a presidential candidate, the most appealing states in which to focus a campaign would be those with the most electoral votes and a history of voting for their respective political parties. With an even mix of Democrats and Republicans, Florida is often referred to as a swing state. A swing state is a state in which no presidential candidate receives overwhelming support in securing Electoral College votes. With its 29 electoral votes, Florida's swing state status plays a crucial role in the outcome of a presidential election. New York, however, was a predominantly red (republican) state before the Obama administration broke ground. In recent years, the state of New York has changed from extremely republican, to republican, and now favors the democratic party. Since Florida does not definitively affiliate itself with either political party and New York has voted in favor of both parties in the past, they prove to be excellent states to evaluate. These states also offer a variety of donors as well as a high number of electoral votes and the selection of these two states will be most beneficial in analyzing who donated to Bernie Sanders.

When analyzing characteristics of donors, there are hundreds of workable choices. Our group narrowed down the selection to three themes containing separate attributes: Economic status (poverty, household income, and unemployment), geographic analysis (location by voting district), and general characteristics (race and high school graduate.) The data for each characteristic was organized by county for each state. This resulted in 67 data points for Florida and 62 data points for the state of New York. The donation data that was received was the average donation, sum of total donations, and number of donations; however, the main problem that arose with analyzing the sum of total donations and number of donations is that both data sets are also affected by the population of the county. Due to this, those data sets were measured by capita to further refine the data.

Recent studies show how poverty affects political party affiliation because of their uncertainty in candidates. Forty-two percent of the lower-income demographic prefer democratic candidates; therefore,

those in poverty will contribute a greater number of small dollar donations. Citizens on and below the poverty line will focus their attention on Bernie as opposed to the other candidates because he offers the greatest benefit for those associated with this economic characteristic. To analyze our hypothesis, we will use the GIS software to examine the poverty layer and determine if the level of poverty is inversely or directly related to the donation data in the area. The GIS data for this comparison between poverty and the donation data was relatively straightforward. The data provided for us organized poverty percent by county, so our group simply joined the given data with the donation data that we received. The join was connected through the county column in both attribute tables. With the table joined, poverty column in the data set was then used with graduated colors in symbology to create a map.

Through analyzing the poverty data, it is clear to see that citizens experiencing moderate poverty levels will most likely donate to Bernie Sanders because a majority of the donations were attributed to this group of individuals. These conclusions are limited to their respective states because the poverty lines differ for Florida and New York. This means that the donations cannot be compared between states.

While researching the correlation between household income and political party affiliation, it was clear to see that the independent party dominated within all three classes: upper, middle, and lower. The next highest percentage within the middle and lower class groups belonged to the democratic party. Since our group only had access to data which included democratic and republican information, we hypothesized that those donating to Bernie Sanders' campaign would be primarily middle class citizens with salaries ranging from forty-five thousand to sixty thousand dollars.

There were two options with which to analyze household income, the median or the mean. It was determined that median would be the best choice as it gives a more accurate division of the household income data per county. Whereas the mean could be statistically skewed by outliers in either direction.

This median income for all counties would then be compared to the donation data by dividing the median incomes into three different categories, lower, middle, and upper. Lower household median income would be 0 to $45,000, middle household median income would be $45,000 to $60,000, and upper would be $60,000+.

In GIS, the household income was separated by zip code. The zip codes had to be manually inputted into their respective counties. After this process, the median income of each zip code was averaged by county and a final median income was determined for each county. With this data, a map was then created showing the median income of each county with graduated symbols.

For every donation category (total amount, average amount, and number), the middle class citizens prevailed with the highest numbers. This data supports our hypothesis and we conclude that those donating to Bernie Sanders were most likely middle class citizens. These conclusions were made using data that does not account for unreported income such as "cash under the table" jobs.

The overall unemployment rate has affected political party affiliation quite drastically in the past few years. More often than not, those who have been unemployed have voted in favor of the Democratic Party. Since the majority of the unemployed population has historically leaned towards the blue side, those who are unemployed will give a greater number of small dollar donations to Bernie Sanders' campaign. We can analyze our hypothesis by examining excel data of the unemployment rates by county and identify each zip codes within them. Using an average of donations between the zip codes will give a beneficial portrayal of Bernie Sanders's donors.

The unemployment data was found online organized by county. This data was then inputted into an excel sheet and that sheet was imported into GIS as a database. Since the unemployment data was already separated by county, it was an easy connection with the donation data. This database was then joined with the donation data and a map was created using graduated colors.

When analyzing the data, our graphs show that those who fall within the five to seven unemployment percentage donated the highest monetary amount, the highest average monetary amount, as well as provided the highest number of donations. This data allows us to conclude that those donating to Bernie Sanders were more than likely from an area with a moderate unemployment percentage. These conclusions were made by analyzing data that only included those who filed for unemployment, so it is only as accurate as the data allows.

Economic status plays a vital role in political party affiliation since those who are not as financially stable are affected more drastically by the outcome of the election. Citizens most likely to donate to the Bernie Sanders campaign would come from an area with moderate poverty levels, moderate unemployment levels, as well as coming from a middle class home. Since Democratic ideals cater to those who are not as well off, the Bernie Sanders campaign benefited greatly from this group of individuals.

Studies have shown that the counties in which citizens are registered to vote can influence the way in which they cast their vote. Those citizens voting in a district that primarily votes democratic will have a greater number of high dollar donations for Bernie Sanders than other districts. We analyzed our hypothesis for this category using data found on the web and provided by our instructor. The data found online were the results of the presidential elections and the populations of our predetermined states organized by county.

A ratio comparing democratic percentages to republican percentages (DvR ratio) was created to compare the various counties. This ratio is found by dividing the percentage of voters in each county who chose the republican candidate on the ballot by the percentage of voters who chose the democratic candidate. This results in a ratio in which high numbers (those greater than 1.2) represent a county ranging from conservative to extremely conservative, low numbers (those less than 0.81) symbolize a

county ranging from liberal to extremely liberal, and a moderate county is represented by numbers in between the previously stated limits. This ratio is then compared to the total amount of donations per 100 people, average donation, and total number of donations per 100 people. After finding sufficient data online to support this ratio, it was then imported into ArcGIS in the form of two excel sheets representing the DvR ratio for Florida and New York. The original data and imported excel sheets were then joined together and an attribute table was created with the additional features from the previous join function. This table was then used to create a map within GIS and the data was then exported to excel to create a scatterplot which would better represent the data. Some limitations were present within the DvR ratio data. This ratio did not account for a small percentage of the population that did not vote for either major political party.

This set of data has proved our hypothesis to be wrong, in this case, for both states. The large majority of donations were concentrated in conservative counties within the states. Since the republican candidate won 340 to 260, the data is naturally skewed to the conservative side. This effect is exhibited in most states, especially those who are classified as a swing state.

Studies have shown how a voter's ethnic background can influence their political affiliation. Minorities, such as African Americans and Latinos, continue to experience significantly worse health outcomes, poorer educational and job opportunities, inferior housing, higher unemployment and lower incomes than white Americans. This causes minorities to vote in favor of a party that will cater to their interests which happened to be the republican and independent party during this particular presidential election. We hypothesized that citizens donating to Bernie Sanders would be of Caucasian descent since his campaign didn't specifically cater to minority interests.

Classifying ethnic background in GIS required an in depth look at the data. The attribute table gives a breakdown of race by zip code in each county. Caucasians contributed the greatest percentage by

far. Due to this, in the attribute table the amount of Caucasians were taken from the entire population of the county and a percentage was calculated. That percentage was then used to create a map with graduated color.

The majority of the race breakdown in both New York and Florida was Caucasian. An average of 80% per county in Florida and 86% in New York. With this in mind, it seems somewhat redundant to classify each county by each race available in the attribute data. The percentage of the population that reflects all other ethnicities is extremely insignificant compared to the Caucasian population in every county except for the four counties between Florida and New York where less than 50% of the population is Caucasian. Due to this, it would be more statistically relevant to evaluate which percent of the majority is Caucasian than the percent of each race individually. Based on these facts, the method that was developed was the separation of the percentage created into three different categories: minority prevalent, predominantly white, and large majority white. After analyzing the graphs, it was clear to see that most of the donations were attributed to the group with a large majority of white voters. We concluded that those donating to Bernie Sanders would most likely be of Caucasian descent.

In recent studies, a trend has formed in which citizens who have obtained a higher level of education would tend to vote in favor of the Democratic party. Using this information, we decided to only analyze the data for those who graduated high school and hypothesized that these citizens would be more likely to donate to Bernie Sanders' campaign.

The attribute table for education was straightforward in that it provided an easy percentage for us to analyze. The high school graduate percentage was organized by zip code, so each zip code had to be paired with their respective county. The average of those percentages was taken as the percentage of Caucasians for each county. Then a map was created displaying those percentages with graduated colors.

There were three categories under high school graduate percentage. The highest data point was around 63% of one county's occupants had passed high school. So, the categories were broken down into 0-40% passing, 40-50% passing, and 50%+ passing. The relevance of these categories was to determine which counties had a majority of their citizens passing, and then divide the remainder into low and high education categories which would be 0-40% passing and 40-50% passing respectively. This allows us to determine if the average person that donated to Bernie Sander's graduated high school and if not, it will let us determine the level of education that the person is expected to have.

Upon analyzing the data, the majority of donations were attributed to those in the 50+ range. This led us to conclude that those who donated to Bernie Sanders most likely graduated high school. This data, however, does not specify whether those who obtained a GED were included in the high school graduate data.

As a presidential candidate, it would be ideal to cater to every issue that presents itself for each citizen; however, it's not feasible to appease every citizen within the United States while keeping true to your own morals and beliefs. Knowing this, most candidates tend to focus on a few topics commonly known to be the most controversial between the democratic and republican parties. Democrats favor the ideals of those who struggle financially and need assistance with educational and medical expenses; therefore, lower and middle class citizens tend to vote for the blue party. Through analyzing our data within GIS and excel graphs, we have characterized those citizens who donated to Bernie Sanders with these six criterion: a middle class, Caucasian, high school graduate stemming from an area experiencing moderate levels of poverty and unemployment and who favor neither political party over the other.

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